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DISTRIBUTIONAL STATUS OF HORNBILLS IN SRI LANKA, 1993–2009

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ABSTRACT. – Current distribution of the Sri Lanka Grey Hornbill *Ocyceros gingalensis,* and the Malabar Pied Hornbill *Anthracoceros coronatus* in Sri Lanka were compared using two methods, by mapping published sightings from the country's regular national bird notes, and by mapping birdwatchers' sightings uploaded to a national database. Overall distribution has not changed much since the compilation by Legge (1880), but abundance of both species has declined owing to reduced cover of forest and home gardens, and the Malabar Pied Hornbill is now Near Threatened and largely confined to the system of protected areas.

This paper was presented at the 5th International Hornbill Conference jointly organised by the National Parks Board (Singapore) and the Hornbill Research Foundation (Thailand), in Singapore on 22nd–25th March 2009.

KEY WORDS. – Hornbills, Sri Lanka, conservation status, distribution.

INTRODUCTION

Sri Lanka has two species of hornbills, the Sri Lanka Grey Hornbill *Ocyceros gingalensis,* and the Malabar Pied Hornbill *Anthracoceros coronatus*. In 1993 (Ginige & Kotagama, 1993), the distribution of the two species was assessed by comparing what had been described in the literature since Legge (1880), and that of the Zoological Survey of Sri Lanka (1985-87), based on the 10 km^2 grid system developed for the survey (Kotagama et al., 1987).

The maps developed enable the distribution of the two species to be broadly recognized (Figs. 1–4). The Sri Lanka Grey Hornbill in 1993 appeared to occupy spatially the same range as that described in 1880 by Legge (1880). The bird was found to be present in the low country up to about 1,200m in most forested and home garden habitats. Similarly, the Malabar Pied Hornbill was noted to be present in the Low Country Dry Zone of the country as described by Legge (1880), frequenting jungle with tall trees. However a serious concern about the 'abundance and extent of occupancy' was raised for both species, as the forest cover had been drastically reduced over the years, from about 75% in 1948 to 21-23% in 1992.

The Grey Hornbill is often sighted in home gardens with considerable vegetation. The 'Kandyan home gardens' – meaning home gardens with multiple tree crops, often with many fruit trees – are favoured by the Grey Hornbill. The extent of these habitats also to some extent has been reduced due to increased house construction. The Malabar Pied Hornbill, though it may sometimes be seen in human settlement areas, often happens to be seen when flying to a roost or visiting a fruit tree often of the *Ficus* group, but never far from a jungle patch. Preferring to fly at considerably higher levels than the Grey Hornbill, it does not therefore inhabit the home garden systems as such. In terms of breeding biology, both species require tree cavities, and these are not common among human habitations, due to the absence of mature old trees. Thus the general records of breeding have all come from forests or semi-forested surroundings. Detailed scientific, systematic breeding biological studies of both species still remain largely undocumented in Sri Lanka.

The information base to determine their distribution and status remains somewhat inadequate. Birdwatchers however have continued to report the presence of hornbills in places where sighted. Published records of such sightings are available in Sri Lanka over some period of time, from the monthly Ceylon Bird Club Notes (CBC Notes). Personal records of

Table 1. Summary of maps produced to show changes and current distribution of two species of hornbills in Sri Lanka.

Years	Sri Lanka Grey Hornbill	Malabar Pied Hornbill
1993–1997	Figure 5	Figure 9
1998–2002	Figure 6	Figure 10
2003–2007	Figure 7	Figure 11
1993–2007	Figure 8	Figure 12

Table 2. Information content of 'Sri Lanka Birds' web-based database for bird observations.

After 15 months from its launch (December 2007)	
Number of visits recorded	1,576
Number of observations recorded	29,699
Number of species recorded	314 (of 482 species in Sri Lanka)
Number of users registered in the system	256
Rank based on the number of observations	
Sri Lanka Grey Hornbill	49
Malabar Pied Hornbill	147
(First five species are Red-vented Bulbul, Common Myna, Yellow-billed Babbler, Spotted Dove and White-bellied Drongo)	

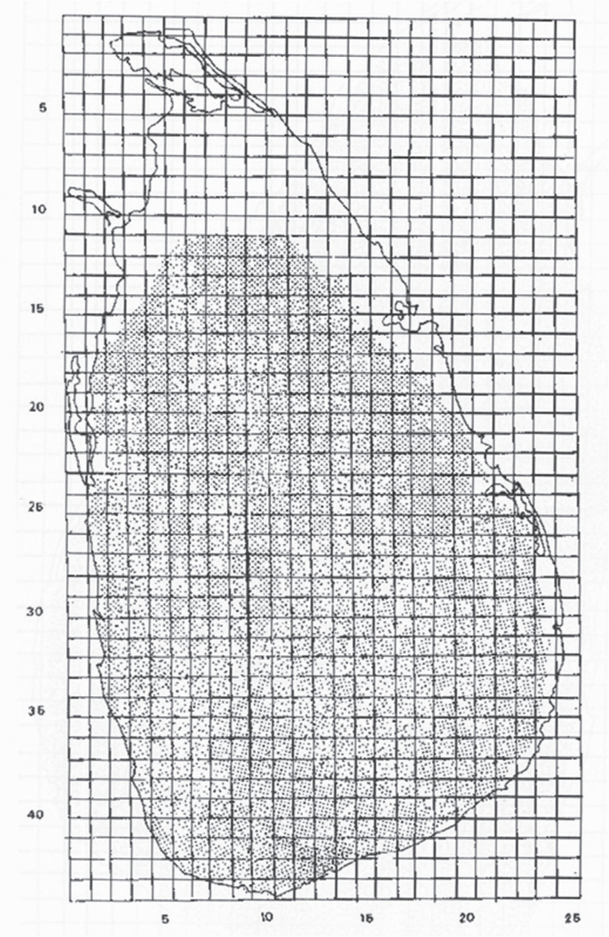

Fig. 1. Distribution of Sri Lanka Grey Hornbill, the endemic species of Sri Lanka (Legge, 1880). Shaded area=Plentiful; Slash area=Numerous.

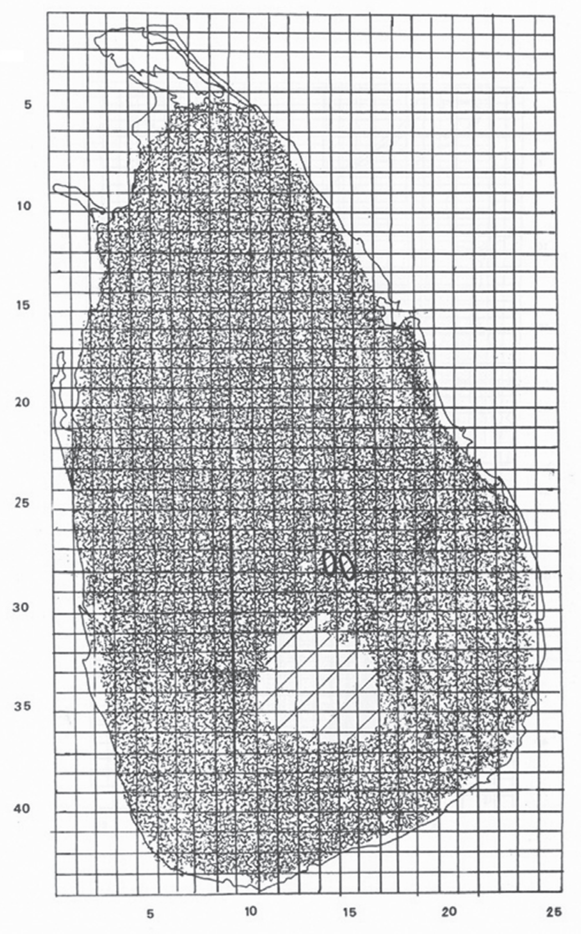

Fig. 2. Degree of abundance of Sri Lanka Grey Hornbill (1993). Shaded area=Plentiful; Slash area=Numerous.

Table 3. Most frequently recorded locations of hornbills based on the CBC Notes 1992–2007.

	Total number of sightings	**Locations of most sightings**	
Sri Lanka Grey Hornbill	364	Bodinagala	26
		Avissawella	22
		Kiyulgala	20
		Sinharaja	19
		Sigiriya	16
Malabar Pied Hornbill	169	Ruhuna / Yala Nat. Park	40
		Udawalawe Nat. Park	33
		Wasgomuwa Nat. Park	15

Table 4. Data set for hornbills in the srilankabirds since Dec 2007 in comparison to 15 years CBC notes.

Sri Lanka Grey Hornbill	
Number of records	178 (364 in CBC Notes for 16 years)
Number of locations	69 (138 in CBC Notes for 16 years)
Maximum number observed	28 at Dombagaskanda
Breeding observations	1 (Feb 2008)
Malabar Pied Hornbill	
Number of records	47 (169 in CBC Notes for 16 years)
Number of locations	25 (52 in CBC Notes for 16 years)
Maximum number observed	50 at Udawalawa NP
Breeding observations	None

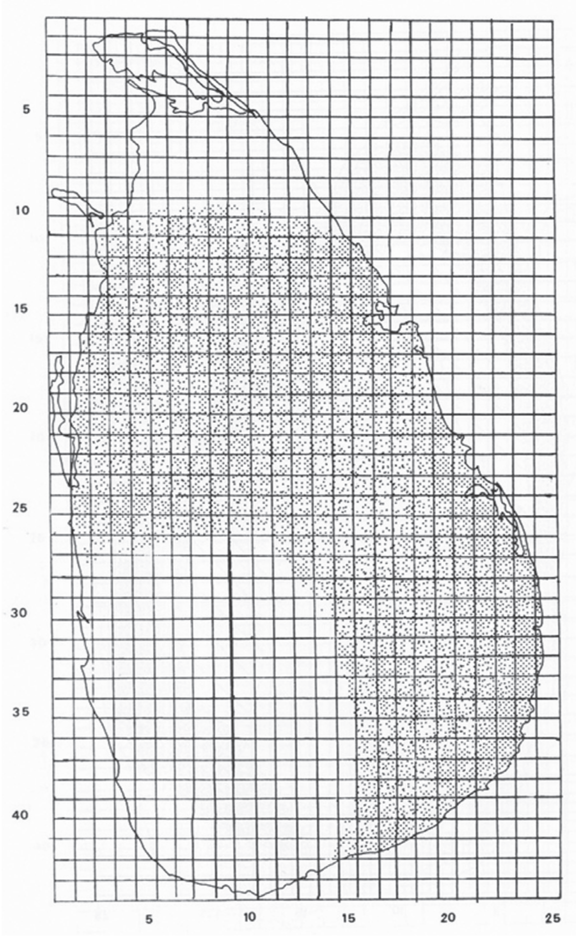

Fig. 3. Distribution of Malabar Pied Hornbill in Sri Lanka (Legge, 1880). Shaded area=Plentiful; Slash area=Numerous.

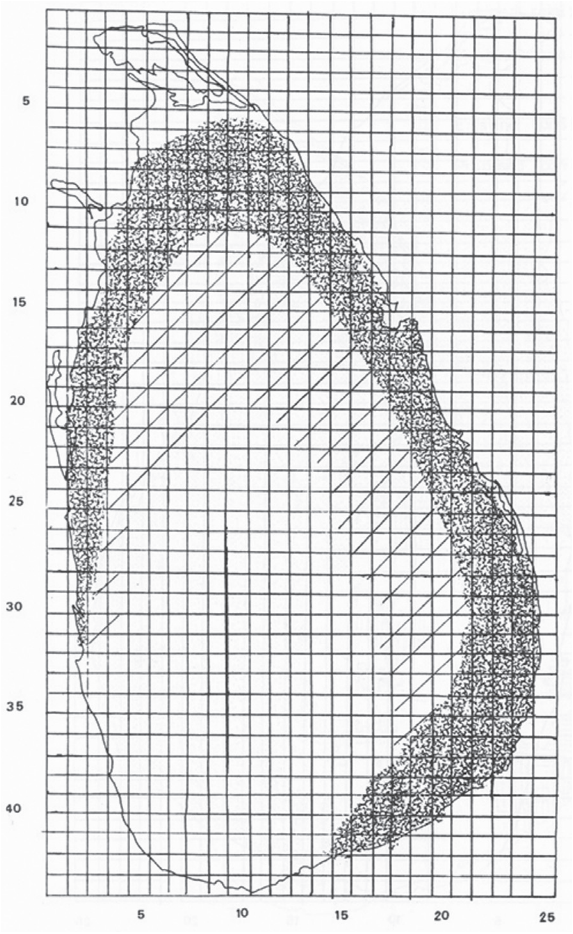

Fig. 4. Distribution of Malabar Pied Hornbill in Sri Lanka (1993). Shaded area=Plentiful; Slash area=Numerous.

Sri Lanka Grey Hornbill Distribution

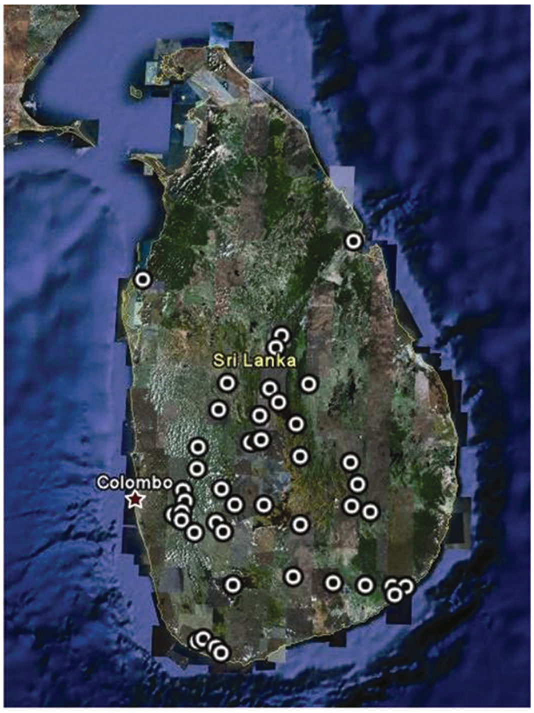

Figure-05 1993-1997

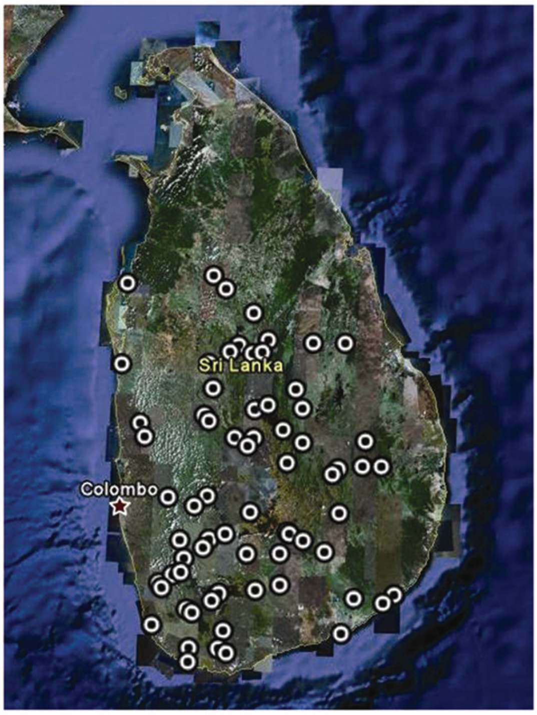

Figure-06 1998-2002

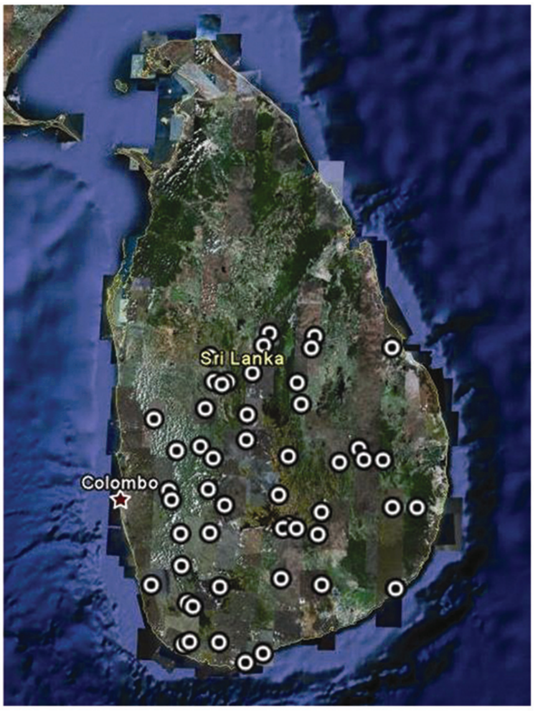

Figure-07 2003-2007

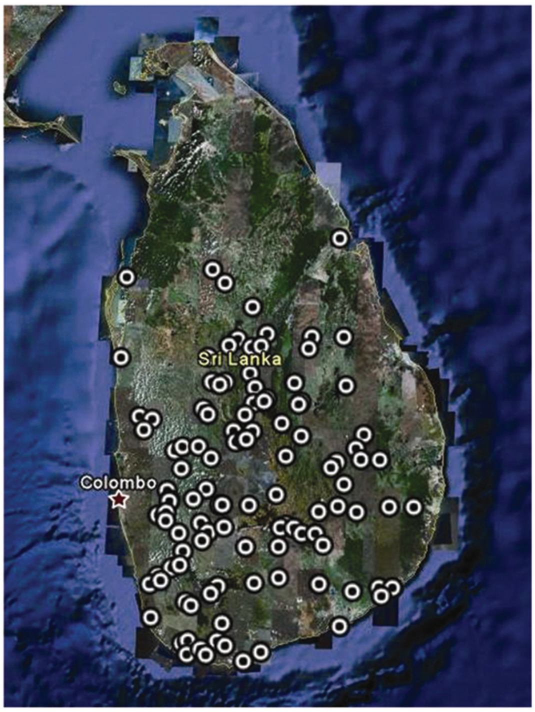

Figure-08 1993-2007

(based on CBC note 1992-2007)

Malabar Pied Hornbill Distribution

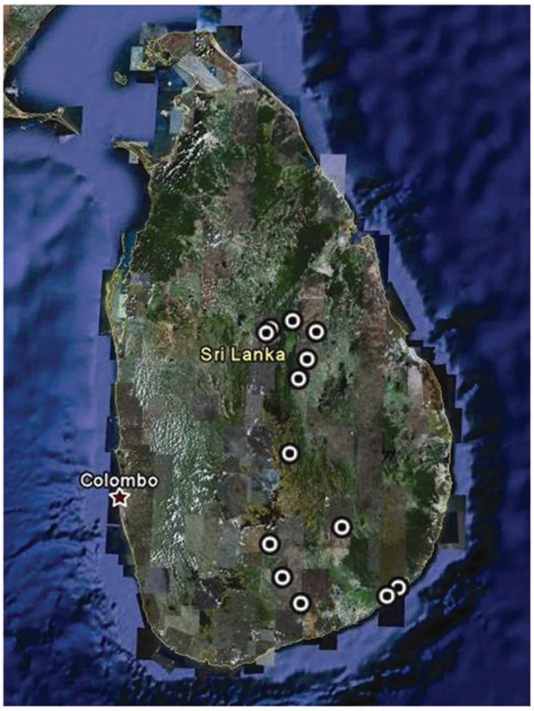

Figure-09 1993-1997

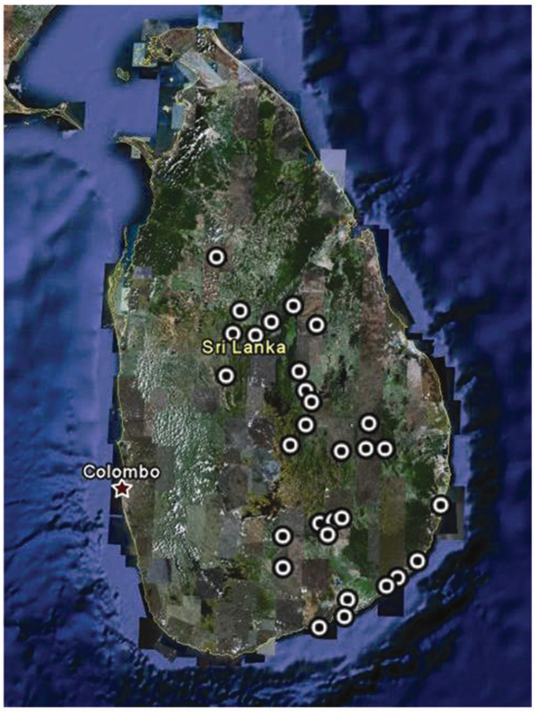

Figure-10 1998-2002

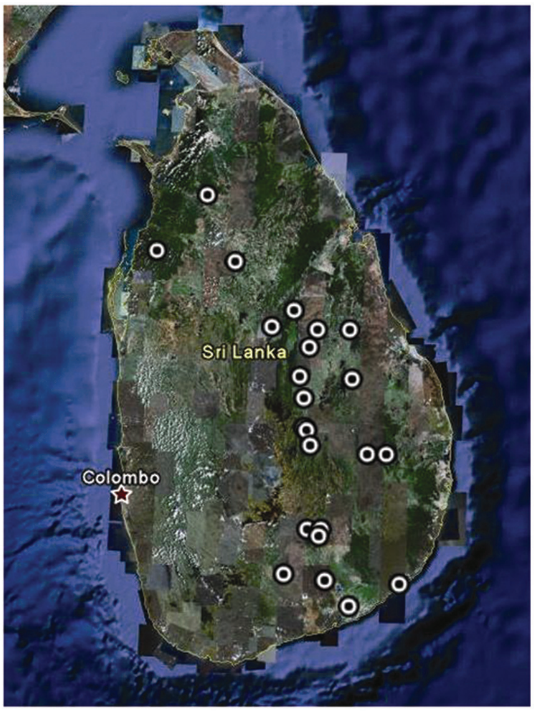

Figure-11 2003-2007

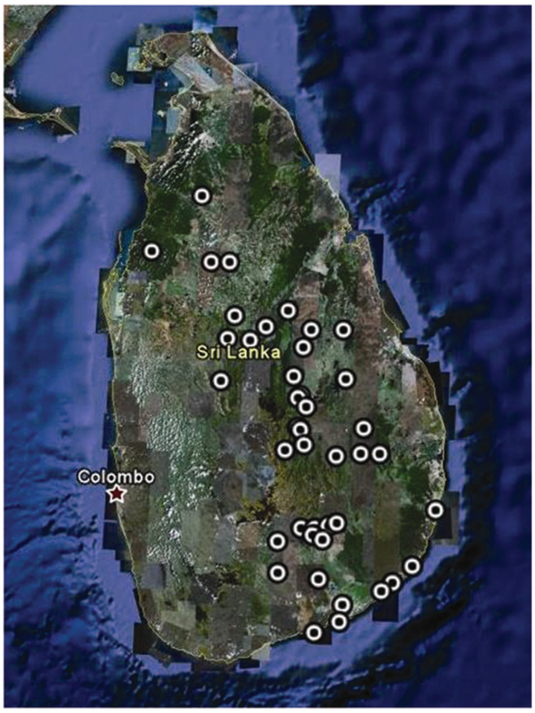

Figure-12 1993-2007

(based on CBC note 1992-2007)

Table 5. Roosting counts of Malabar Pied Hornbills at Kumana Villu, Yala East National Park, Sri Lanka

	2005 December	**2006 March**	**2006 April**
Range	90 –188	139–180	125–157
Max No.	148	154	139

sightings have often not been published and thus remain lost to science in the notebooks of birdwatchers.

In 2006, the Field Ornithology Group of Sri Lanka, with assistance from Mr. Gamini Samarawickrama and Wathsala Abeygunawardena and some students from the Sri Lanka Institute of Information Technology, attempted a computer based data management system to obtain distributional and abundance information. This unfortunately did not materialise as all the computer contributors moved outside of Sri Lanka. However, in the meantime, BirdLife International along with Royal Society for the Protection of Birds are developing an Internet-based database system "World Birds".

METHODS

An attempt was thus made to plot the distribution of the two species based on the published site records in the CBC Notes (Ceylon Bird Club, 1992–2007), using the Google map available on the public internet domain. Three sets of maps covering five-year periods and a consolidated 15-year map were produced. The maps thus produced are listed in Table 1. These sightings and the maps were used to draw conclusions about the distribution of the two species.

We used the World Birds database records to compare with the more traditional compilation of published sightings. The details of the system and its potential have been well documented by BirdLife International (Leong, 2008). Fogsl launched the World Birds database system as "srilankabirds.com" in December 2007. Today it has over 256 users, with 29,699 data bits (Table 2). The system enables past data to be added to the system. The data inputs are validated by an administrator, and often location specificity (geographical position) is adjusted for accuracy through communication on the internet, via e-mail directly with the input source or through telephone communication.

Thus the database is much more authentic and accurate with geographical coordinates of sighting locations. The distribution maps for the two hornbill species provided by the system are shown in Fig. 13. As Table 2 indicates, the e-birding system has the potential to provide useful information on bird species distribution.

RESULTS

The distribution of Grey Hornbill and Malabar Pied Hornbill has not changed much over the years. The overall distribution patterns from these sightings are similar to those derived from the grid-based assessment of 1993. The absence of records from the east and north (beyond NCP) has to do with the terrorist situation that was prevailing at the time. This however does not provide any information on the abundance of the two species.

The distribution of Grey Hornbill is broad and records were obtained from all parts of its historical range. However, the Malabar Pied Hornbill sightings came mostly from within three protected areas. This indicates that the birds are seeking refuge within protected areas or they are being lost from elsewhere.

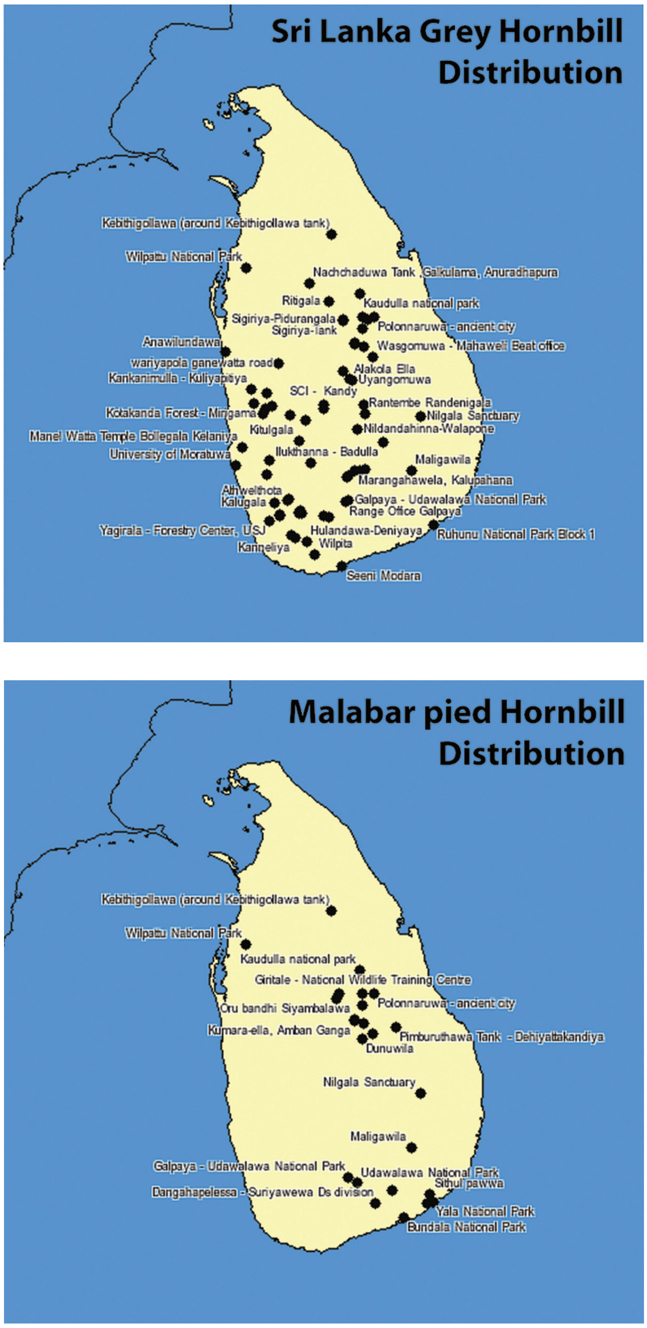
Sri Lanka Grey Hornbill Distribution
Kebithigollawa (around Kebithigollawa tank)
Wilpattu National Park
Nachchaduwa Tank ,Galkulama, Anuradhapura
Ritigala
Kaudulla national park
Sigiriya-Pidurangala
Sigiriya-lank
Polonnaruwa - ancient city
Anawilundawa
Wasgomuwa - Mahaweli Beat office
wariyapola ganewatta road
Kankanimulla - Kuliyapitiya
Alakola Ella
Uyangomuwa
SCI - Kandy
Rantembe Randenigala
Kotakanda Forest - Mirigama
Nilgala Sanctuary
Manel Watta Temple Bollegala Kelaniya
Kitulgala
Nildandahinna-Walapone
University of Moratuwa
Ilukthanna - Badulla
Maligawila
Marangahawela, Kalupahana
Athwelthota
Kalugala
Galpaya - Udawalawa National Park
Range Office Galpaya
Yagirala - Forestry Center, USJ
Hulandawa-Deniyaya
Ruhunu National Park Block 1
Kanneliya
Wilpita
Seeni Modara
Malabar pied Hornbill Distribution
Kebithigollawa (around Kebithigollawa tank)
Wilpattu National Park
Kaudulla national park
Giritale - National Wildlife Training Centre
Polonnaruwa - ancient city
Oru bandhi Siyambalawa
Kumara-ella, Amban Ganga
Pimburuthawa Tank - Dehiyattakandiya
Dunuwila
Nilgala Sanctuary
Maligawila
Galpaya - Udawalawa National Park
Udawalawa National Park
Sithul pawwa
Dangahapelessa - Suriyawewa Ds division
Yala National Park
Bundala National Park

Fig. 13. The distribution of Sri Lanka Grey Hornbill (top) and Malabar Pied Hornbil (bottom) based on Worldbirds Database since Nov 2007 (www.worldbirds.org/srilanka).

A limited set of data on a single roosting site at Kuman Villu within the Yala East National Park is presented here to indicate the general stability that prevailed during the years of sampling within this protected area (Table 5). March and April are the nesting period of water birds in this area, including pelicans, painted storks and spoonbills. From December, these species start to gather in the villu. Nesting of cormorants and darters can be seen during December. The roosting population of Malabar Pied Hornbills increases in the villu after the nesting of waterbirds is over. During the nesting period most of the hornbills roost on the large kumbuk trees along the river.

THREAT STATUS

Concern for hornbills was expressed through their listing in the Provisional National Status Report on Biological Diversity in 1989 (NARESA, 1989) and the subsequent revision in 1993 (IUCN, 1993). The report considered the Sri Lanka Grey Hornbill a threatened species, because of its endemic status. This list contained all endemic species as threatened on the basis of reduced habitat since 1948. Subsequently the Malabar Pied Hornbill appeared in the "Near Threatened" list in 1994 (Collar et al., 1994). In 1999, Sri Lanka undertook a National Threatened Status analysis based on a modified version of the IUCN categorization. This resulted in the Sri Lanka Grey Hornbill remaining in the threatened category (IUCN, 2000). The Asian Red Listing exercise made the Malabar Pied Hornbill a "Near Threatened" species (BirdLife International, 2001). This status was further confirmed by the 2007 Red List of Threatened Fauna and Flora of Sri Lanka (IUCN Sri Lanka & MENR, 2007). As evident from the distributional maps there is credence to this judgment as the Malabar Pied Hornbill sightings come mostly from within or close proximity to Protected Areas.

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